News Releases

R&D Chronicles - The Mosquito Fighters, Part X: Preventive Measures in the Atomic Age

Released: 1/1/2017

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U.S. Navy Malaria and Mosquito Control Unit Number 1 Field Lab, July 1950. BUMED Archives

"I have formerly observed, . . .more good will be engendered abroad by a box of pills, a hypodermic syringe or a spray gun in the hands of the right kind of doctor than by all the rocket guns and atom bombs that will ever be made."

~Rear Adm. Lamont Pugh, Navy Surgeon General, April 1953

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The deployment of malaria control and epidemiology units in World War II may have minimized the toll of mosquito-borne diseases on U.S. Armed Forces, but these were intended only as temporary wartime measures. Despite the continuing need for prevention and disease control post-war the Navy disbanded most of these units during the period of demobilization.

Three years after the war, Navy Surgeon General Clifford Swanson likened the peacetime requirement for these units to the access of basic emergency services. In a letter to the Chief of Naval Operations in 1948, Swanson stated, "…the peacetime necessity for epidemic control teams . . . somewhat parallels the necessity for fire departments in that they cannot be organized and trained after the fire breaks out."

The Navy addressed this need in 1949 by authorizing the permanent establishment of these medical units.

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In January of that year, the Navy stood up the Malaria and Mosquito Control Unit (MMCU) No. 1 at the Naval Air Station, Jacksonville, Florida Under the command of Lt. Cmdr. Kenneth Knight, MSC, USN—an entomologist who had served with Dr. Sapero in Guadalcanal—the unit managed the field use of DDT (Dichlorodiphenyltrichloroethane), investigated new insecticides, explored better means of insecticide dispersal, and directed the Navy's mosquito control policy.

MMCU would be re-designated as the Disease Vector Control Center (DVECC) in 1957. Presently known as the Navy Entomology Center for Excellence (NECE), it operates as an echelon 5 command under the Navy and Marine Corps Public Health Center.

In March 1949, the Navy consolidated the duties of the four remaining epidemiology teams (Nos. 13, 24, 80 and 100) under five Epidemic Disease Control Units (EDCU) based at Norfolk, Virginia. (No. 2), Camp Lejeune (No. 3), Great Lakes, Illinois . (No. 4), San Diego, California (No. 5), and Pearl Harbor, Hawaii (No. 6). EDCU No. 1 was initially planned for Bethesda, Maryland, but was never placed in operation; a seventh unit was later established in Naples, Italy, in 1957.

EDCUs—later known as Environmental and Preventive Medical Units (EPMUs)—investigated outbreaks of disease stateside and overseas; conducted sanitary inspections and surveys for disease vectors; and oversaw the sanitary control of food, water, waste disposal, and living quarters, among other activities. Then, as now, these units often executed their missions in collaboration with an assortment of federal agencies as well as health departments of various states, cities, territories and foreign countries.

In 1950, the Navy further expanded the preventive medicine program by establishing Fleet Epidemic Disease Control Units (FEDCUs) aboard the landing craft USS LSI(L)-1091 (No. 1) and the auxiliary ship USS Whidbey Island (AG-141) (No. 2).

Soon after it was acquired from the Army in 1947, Whidbey Island operated as the Navy's chief "floating laboratory" in the Pacific. Medical personnel stationed on this ship travelled extensively throughout the Trust Territories in the Pacific, and Formosa (Taiwan) where they conducted health surveys on native populations. Following the start of the Korean War, June 25, 1950, both Whidbey Island and LSI(L)-1091 were deployed to the combat theater to provide needed epidemiological services.

FEDCUs travelled across the Korean peninsula investigating disease outbreaks, training military personnel in hygiene, sanitation and epidemic disease control, and dispersing insecticides—primarily DDT—via spray (fog) and powder form.

Originally used by the Armed Forces in World War II, DDT was the U.S. military's insecticide of choice in the fight against mosquitoes and other pests throughout the 1950s. The Department of Defense was also one of the primary users of the chemical. During the Korean War alone, the U.S. military was allocated 25 percent of all the DDT produced in United States leading to a worldwide shortage in 1951.

Along with typhus, malaria and Japanese B. encephalitis were among the greatest disease threats for the Armed Forces in the Korean theater. And despite prophylaxes like Chloroquine, use of protective clothing and insect repellents, malaria proved especially resilient. In September 1951, the malaria rate among Marines in theater increased to 17.5 percent from 4.6 the previous month. Over the same period, the rate of malaria increased stateside due in part to the "slackening" of the suppressive drug regimen.

The adoption of the antimalarial Primaquine would prove one of the medical hallmarks of the war. Army and Navy clinical trials in the early 1950s showed Primaquine to be effective against Plasmodium vivax and Plasmodium ovale by eradicating the parasites in the bloodstream and liver thus preventing further relapse. By the close of the war, the administration of the

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NMRC and WRAIR Work Together to Fight Dengue Virus

Beyond the Battlefield: Using Research to Improve Wounded Warrior Care and Quality of Life

Chloroquine and Primaquine combo would further diminish malaria's impact on military personnel.